Improvement in the technology of production of ball bearing steel

and 31.6% respectively (statistical treatment of 120 heats of each type). A statistical analysis of the results of metallographic control of each type of heat showed that with the use of a 45% ferrosilicon the degree of contamination by globular inclusions decreases on the average from 1.24 ± 0.039 to 0.98 ± 0.034 units (statistically significant). The degree of contamination by oxides and sulphide inclusions remained practically unchanged. It appears from thermodynamic considerations that under vacuum silicon should not act as a deoxidant, nevertheless it forms inclusions since during the immersion of ferrosilicon into the metal some localised zones of a very high concentration of silicon are formed where, in accordance with the law of mass action, its oxidation takes place. In view of the above, the use of ferrosilicon as a deoxidant is inadvisable. To confirm this supposition, an experimental heat of ШХ 9 (ShKh9) steel was made. The duration of the vacuo treatment under a residual pressure of 7 mm was 8 minutes. The removal of the residual oxygen was done by aluminium added uniformly in small portions during teeming (50-60 g/ton). The metal stream was protected with natural gas.

23988

S/148/61/000/005/001/015
E071/E135

Improvement in the technology of production of ball bearing steel

An investigation of the macrostructure of this metal showed that it was not inferior to that of metal deoxidized with ferrosilicon. Metallographic control showed a decrease in the degree of contamination by inclusions. The latter investigation is being continued.
There are 6 figures, 3 tables and 6 references: 5 Soviet and 1 German.

ASSOCIATION: Moskovskiy institut stali
(Moscow Steel Institute)

SUBMITTED: August 19, 1960

Card 9/15

BARANOV, I. A.

2

PHASE I BOOK EXPLOITATION SOV/6329

Oyks, Grigoriy Naumovich, Paruir Apetnekovich Matevosyan, Il'ya Iosifovich Ansheles, Vladimir Ivanovich Danilin, Gennadiy Anisimovich Sokolov, Ivan Aleksandrovich Baranov, and Viktor Mikhaylovich Selivanov.

Novaya tekhnologiya vyplavki sharikopodshipnikovoy stali (New Technology of Melting Ball-Bearing Steel). Moskva, Metallurgizdat, 1962. 124 p. Errata slip inserted. 2250 copies printed.

Ed. of Publishing House: V. I. Ptitsyna; Tech. Ed.: P.G. Islent'yeva.

PURPOSE: This book is intended for metallurgical engineers of steel-melting shops and central plant laboratories. It may also be useful to students at tekhnikums and metallurgical schools of institutions of higher learning.

COVERAGE: The book reviews the new technology of making ball-bearing steel, which was introduced at the "Krasnyy Oktyabr'" Metallurgical Plant in Volgograd. Vacuum degassing of metal is discussed as

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New Technology (Cont.) SOV/6329

an intermediate technological stage of the melting process. A brief outline of the conventional method of melting ball-bearing steel is presented, along with advantages offered by the new technology, which ensures an improved steel quality. Designs of vacuum-units of the Plant are described. The book also reviews experiments in making silicon-free ball-bearing steel by double vacuum degassing. The quality of steel produced for several years by the new melting technology is discussed in detail. No personalities are mentioned. There are 61 references: 56 Soviet, 3 German, and 2 English.

TABLE OF CONTENTS:

S/148/62/000/007/002/005
E071/E183

AUTHORS: Baranov, I.A., Oyks, G.N., Ansheles, I.I., Ponomareva, Ye.P., and Kachanov, N.N.

TITLE: Vacuum treated silicon-free ball-bearing steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no.7, 1962, 78-85

TEXT: In an attempt to improve the purity of ball-bearing steel, the possibility of modifying the usual deoxidising practice (vacuum treatment in the ladle and addition of 6 kg/t of ferro-silicon and 160 g/t of aluminium) was investigated. Four heats of silicon-free ball-bearing steel were made in a 16-t electric furnace and teemed into 4-t ingots. At the end of the vacuum treatment [Abstractor's note: no details given] undeoxidised metal was passed for teeming. In two heats 60-100 g/t of aluminium was added to the funnel. In the remaining two heats, aluminium was added to the ingot mould; of these two ingots one was deoxidised and the other - teemed through the same syphon - was not deoxidised. The remaining metal from these two heats (not deoxidised either with silicon or aluminium) was top

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poured; one ingot under vacuum (3rd ingot) and one in air (4th ingot). From each ingot samples of rolled square (78 mm) were taken at a distance of 16, 30, 62 and 97.5% from the top; some specimens of the finished product (14-27 mm round) were also investigated. The results of the metallographic studies confirmed the data on the total amount of inclusions in steel, determined by the electrolytic dissolution of 3-5 specimens from each ingot. In steel produced by the usual method (deoxidation in the ladle and vacuum treatment) the amount of inclusions was 0.0026 wt.%; in silicon-free steel deoxidised on teeming in the funnel 0.0031 wt.%; deoxidised in the mould 0.0083 wt.%; and top poured under vacuum 0.0048 wt.%. The smallest amount of oxide inclusions was in steel teemed under vacuum without deoxidation. In all silicon-free heats the amount of globular inclusions was smaller than in the normal top-poured steel. Undeoxidised, bottom-poured steel had more impurities than heats. There are 5 figures and 2 tables.

ASSOCIATION: Moskovskiy institut stali i splavov
(Moscow Institute of Steel and Alloys)

BARANOV, I.A.; OYKS, G.N.; ANSHELES, I.I.

Efficiency of the vacuum treatment of liquid steel. Izv. vys. ucheb. zav.; chern met. 5 no.1:60-61 '62. (MIRA 15:2)

1. Moskovskiy institut stali.
(Vacuum metallurgy)
(Steel—Metallurgy)

S/148/62/000/001/003/013
E111/E435

AUTHORS: Baranov, I.A., Oyks, G.N., Ansheles, I.I.

TITLE: The effectiveness of vacuum treatment of liquid steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.1, 1962, 61-69

TEXT: Divergent views have been expressed on the effectiveness of different methods of vacuum treating steel. One view is that the ferrostatic head prevents effective vacuum treatment of large masses of liquid steel and various proposals for obviating this limitation by improving stirring have been made and adopted. The present authors have previously shown that the vacuum needed to produce complete deoxidation only affects inclusions in the steel up to a limit which, under their experimental conditions, was 20 to 25 mm Hg. Differences in ferrostatic-head equivalents of residual pressures for good and bad heats are small relative to the total depth of steel in the ladle and it appears that pumping rate must be another factor influencing degassing. An approximate calculation is made of the depth of penetration h of the reaction zone into the metal which governs the intensity of

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stirring. The calculation yields a differential equation, the solution of which is

$$h_M = \frac{1}{\gamma L}\left(1 + \frac{2\sigma}{r}\cdot 1.02\cdot 10^{-6}\right) e^{-K_{x.p}\,\tau} - \left(e^{-2.3A\tau} + \frac{2\sigma}{r}\cdot 1.02\cdot 10^{-6}\right) \text{ cm.} \qquad (7)$$

This equation is valid for the particular case of $P_{CO} = P_{bar} = 1$ atm; $K_{x.p}$ is the rate constant for the reaction [C] + [O] = {CO}, litre/sec. Taking σ = 1250 dyn/cm and r = 0.1 cm (melting temperatures 1550 and 1600°C), values found by means of Eq.(7) show that the mixing-zone depth depends more on the rate of the chemical reaction rather than on the pumping rate. Five experimental heats of ball-bearing steel were used to provide additional experimental data. Samples were taken from the furnace before tapping, from the ladle before vacuum treatment and from the ladle (from 3 levels) after vacuum treatment before introduction of the deoxidizer, and from the ladle after introduction of deoxidizer under vacuum. Determinations were made

of hydrogen (by vacuum heating), nitrogen (wet method) and non-metallic inclusions (electrolytic solution of part of the sample). A further three heats were produced with top pouring, after ladle vacuum treatment, into a mould at a residual pressure of 15 to 25 mm Hg. Three ingots were also poured by the ordinary bottom pouring method. Gas samples were taken during vacuum treatment. No variation in nitrogen content up the ladle was detected. In the upper part of the vacuum treated metal in the ladle there is less hydrogen and non-metallic inclusions than lower down: this shows that the lower layers participate less in stirring under the vacuum and therefore undergo less purification. Comparison of the structure of ingots vacuum and air-poured showed the following: In the double-vacuum treated steel, the columnar crystal zone was reduced and a finer structure with a denser central zone was produced. Contrary to data on ingots subjected to a single vacuum treatment, there was little segregation. In billets rolled from ingots of double vacuum treated steel without silicon and aluminium a pronounced segregation square was found; their density was equivalent to that of billets from

aluminium-killed steel. When vacuum-treated steels without silicon and aluminium were poured in air, the ingots developed porosity. This suggests that the second vacuum treatment of undeoxidized steel reduces the dissolved-oxygen content to that in equilibrium with carbon at the freezing temperature. The double vacuum treated ingots contained 0.0145% inclusions, the content after single vacuum treatment being 0.0360% and less uniformly distributed. This additional inclusion reduction is probably due to flotation promoted by gas evolution during vacuum pouring. There are 6 figures.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: October 14, 1961

BARANOV, I.A.: OIKS, G.N.; ANSELES, I.I. [Ansheles, I.I.]

Efficiency of the treatment of liquid steel in vacuum. Analele metalurgie 16 no.4:55-63 O-D '62.

L 6669-65
EWT(m)/EWP(q)/EWP(b) IJP(c) MJW/JD

ACCESSION NR: AR4036013 S/0276/64/000/003/G009/G009 51

SOURCE: Ref. zh. Tekhnol. mashinostr. Sv. t., Abs. 3G44

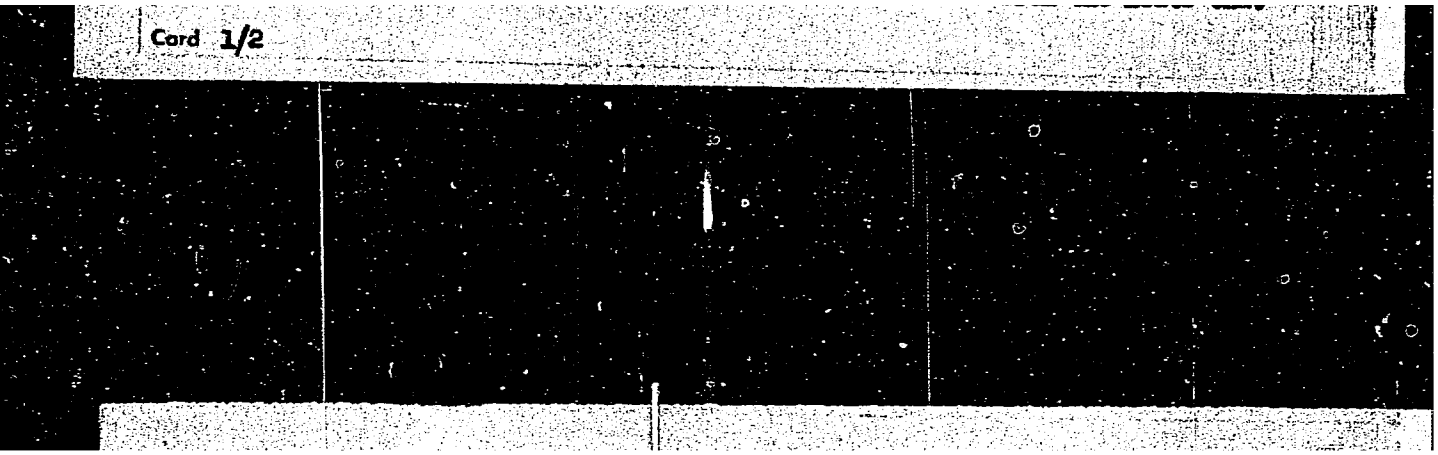
AUTHOR: Kachanov, N. N.; Sakhon'ko, I. M.; Pchelkina, V. M.; Laposhko, A. D.; Oyks, G. N.; Baranov, I. A.; Ansheles, I. I.

TITLE: The quality and properties of silicon-free bearing steel

CITED SOURCE: Tr. Vses. n.-i. konstrukt.-tekhnol. in-ta podshipnik. prom-sti, no. 1(33), 1963, 54-68

TOPIC TAGS: ShKh15 steel, silicon free steel, high purity steel, bearing steel, instrument bearing steel, stainless steel

TRANSLATION: An industrial method has been developed for making ShKh15 bearing steel, which does not contain silicon, making it possible to obtain metal with a smaller content of nonmetallic inclusions than is possible with ordinary steel-



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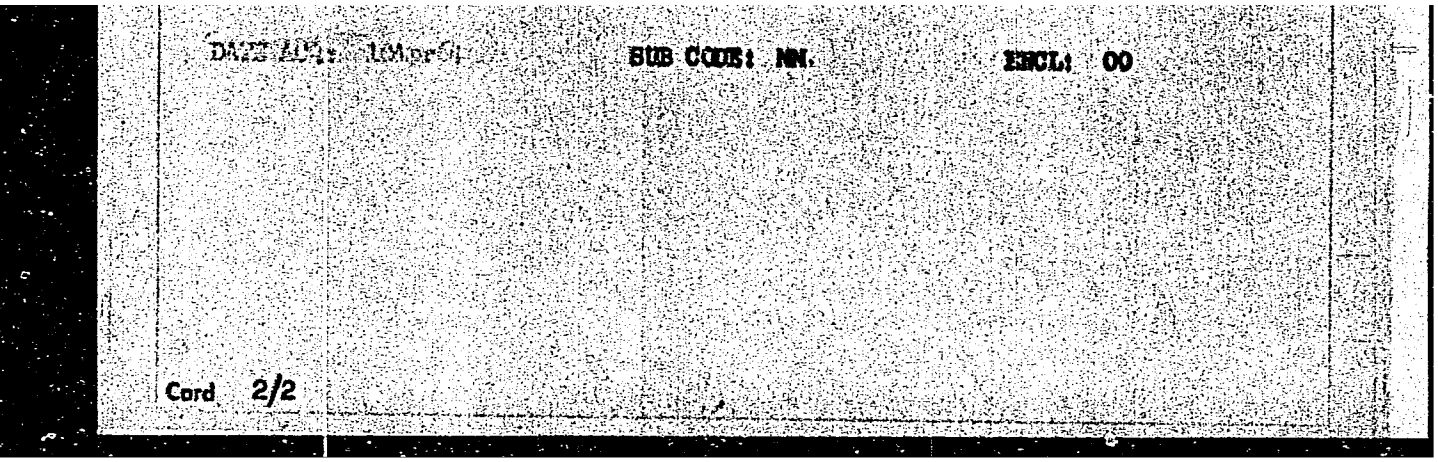

L 38547-66 EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/WW/JG/GD

ACC NR: AT6014752 SOURCE CODE: UR/0000/65/000/000/0072/0075

AUTHORS: Baranov, I. A. (Candidate of technical sciences); Shmulevich, R. S.; Karasik, V. R.; Kurganov, G. B.

ORG: none

TITLE: Fabrication and study of wire from superconducting niobium-zirconium alloys

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov. 1st. 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 72-75

TOPIC TAGS: superconductivity, superconducting alloy, electric wire, niobium alloy, zirconium alloy, current density, critical magnetic field, metal heat treatment, solenoid

ABSTRACT: The work of the Institute of Metallurgy im. A. A. Baykov (Institut metallurgii) on a semi-industrial level in producing wire from Nb-Zr alloy is discussed. The starting materials were electron-beam smelted niobium with a hardness of 80--85 HB units and zirconium iodide in the form of rods with a diameter of 10--14 mm. Alloys with 40--50% Zr had the maximum hardness of 260--270 kg/mm^2. Homogenizing annealing of the ingots at 1200C for 24 hrs was tested. This caused extraction of the second phase with an increase in hardness. Alloys with 25--27% Zr

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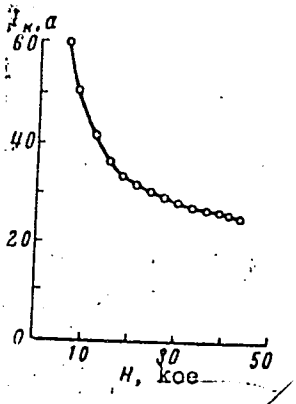
ACC NR: AT6014752

had the maximum critical current density ($4.6 \cdot 10^4$ a/cm^2) (see Fig. 1).

Fig. 1. Critical current as a function of applied transverse magnetic field strength for short specimen of wire of Nb alloy with 26% Zr (wire diameter 0.2 mm).



The wires were tested in lengths of 20 m wound in solenoids with 350--400 turns. The maximum critical current density ($1.1 \cdot 10^5$ a/cm^2) is obtained with annealing at 1000C. The authors thank Doctor of Chemical Sciences Professor Ye. M. Savitskiy and Candidate of Technical Sciences V. V. Baron. Orig. art. has: 1 photograph, 2 graphs, and 1 table.

SUB CODE: 11, 20/ SUBM DATE: 23Dec65/ ORIG REF: 002

Card 2/2

L 21845-66 EPF(n)-2/EWT(m)/T/EWP(w)/EWP(t) IJP(c) WW/JD/JG

ACC NR: AP6010403 SOURCE CODE: UR/0126/66/021/003/0379/0383

AUTHOR: Shmulevich, R. S.; Baranov, I. A.; Karasik, V. R.; Kurganov, G. B.

ORG: none

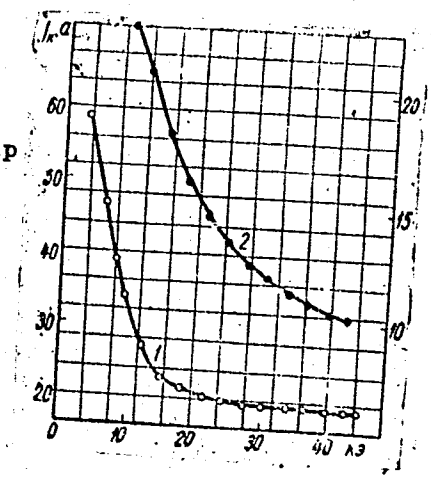
TITLE: Effect of microheterogeneity on the characteristics of superconductivity of Nb-Zr-Ta alloy

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 3, 1966, 379-383

TOPIC TAGS: niobium alloy, zirconium containing alloy, tantalum containing alloy, superconductive alloy, alloy structure, alloy superconductivity

ABSTRACT: In a search for new superconducting materials, a niobium-base alloy containing 35% zirconium and 15% tantalum has been tested for the effect of structural microheterogeneity on the magnitute of critical current density. Two alloy ingots were melted in an electron-beam furnace and cooled at different rates. The slowly cooled ingot had a homogenous structure and a resistivity of 49.9 μohm·cm. In the rapidly cooled ingots the dendrites were niobium- and tantalum-rich and the matrix was zirconium-rich; the resistivity of this ingot was 54.4 μohm·cm. Both ingots were conditioned by machining to a diameter of 4 mm, preforged, and cold drawn into wire 0.2 mm in diameter. The size of

Card 1/3 UDC: 539.292:548.0:537.312.62



Intensity of magnetic field, koe

Fig. 1. Critical current density for Nb-Zr-Ta alloy versus intensity of magnetic field

heterogeneous areas in the wire obtained from the rapidly cooled ingot was 1000—1500Å, i.e., of the same order as the depth of magnetic-field

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L 21845-66

ACC NR: AP6010403

penetration into a superconductor. The heterogeneous alloy was found to have a considerably higher critical current density than that of homogeneous alloy (see Fig. 1). The upper critical field of the former exceeds, apparently, 70 koe. Orig. art. has: 3 figures. [DV]

SUB CODE: 11, 20/ SUBM DATE: 31May65/ ORIG REF: 004/ OTH REF: 006
ATD PRESS: 4227

Card 3/3 nst

L 36123-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/JG/GD

ACC NR: AT6014760 SOURCE CODE: UR/0000/65/000/000/0115/0117

AUTHORS: Kurganov, G. B.; Baranov, I. A. (Candidate of technical sciences); Karasik, V. ?.; Shmulevich, R. S.

ORG: none

TITLE: Solenoid of niobium-titanium alloy

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov. 1st, 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 115-117

TOPIC TAGS: superconducting alloy, niobium containing alloy, titanium containing alloy, solenoid, wire

ABSTRACT: The construction and testing of solenoids wound with superconducting wire of Nb - 50% (by wt) Ti alloy are described. The first solenoid, consisting of 12 369 turns of the 0.2-mm diameter wire wound on a 10.4-mm diameter tube, reached a field of 14.6 koe with a maximum current of 5.7a or a current density of 1.8×10^4 a/cm^2 (at 4.2K). The solenoid was unwound and the wire was galvanically coated with a 50 μ thick copper layer and insulated with Aquadag. It was found that copper plating significantly embrittled the wire, possibly because of hydrogen diffusion and the

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ACC NR: AT6014760

formation of titanium hydride. The wire was rewound on the same form, producing a second solenoid of 9109 turns. The maximum current for this solenoid was 6.8a or a current density of 2.2 x 10^4 a/cm^2 (also at 4.2K). However, the field reached only 11.4 koe due to a reduced filling factor. The obtained results agree well with published data for short samples of the Ni-Ti alloy. The authors thank B. A. Vul, corresponding member AN SSSR, and M. B. Golant, doctor of technical sciences, for their interest in the work and valuable advice. Orig. art. has: 2 figures.

SUB CODE: 09,11/ SUBM DATE: 23Dec65/ ORIG REF: 001/ OTH REF: 005

L 36122-66 EWT(m)/EWP(t)/ETI IJP(c) WW/JD/JG/GD

ACC NR: AP6014761 SOURCE CODE: UR/0000/65/000/000/0118/0119

AUTHORS: Kurganov, G. B.; Baranov, I. A. (Candidate of technical sciences); Karasik, V. R.; Sviridonov, M. N.; Shmulevich, R. S.; Novokreshchenova, V. B.; Sentyurina, N.N.

ORG: none

TITLE: Device for investigating the critical current in superconductors and its application for studying the effect of iron impurity on the superconducting properties of niobium-zirconium alloy

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov. [ ], 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 118-119

TOPIC TAGS: superconductivity, critical magnetic field, superconducting alloy, niobium alloy, zirconium containing alloy, iron containing alloy, solenoid, physics laboratory instrument

ABSTRACT: A device is described for measuring the critical current of short wire samples as a function of the external transverse magnetic field (range 0--40 koe) (see Fig. 1). The magnetic field is created by a solenoid with windings of niobium-zirconium wire, whose construction was described in the preceding article (V. R. Karasik, G. B. Kurganov, V. G. Yershov, I. Yu. Shebalin, B. D. Kopylovskiy, and V. S. Ivanov. Present compilation, p. 101). The device was used for investigating the properties of 0.2-mm diameter wire of Nb - 26% Zr alloy alloyed with iron (0.5, 0.4,

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L 36122-66
ACC NR: AT6014761

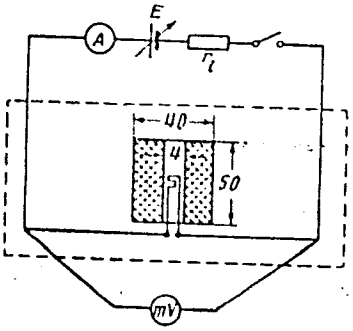

Fig. 1. Schematic of device for investigating the critical current in superconductors. Dotted line indicates volume at T = 4.2K, cross-hatched area indicates solenoid creating magnetic field (dimensions in mm).

0.2, and 0.008% Fe). In general, an increase in Fe content decreased the magnitudes of both the critical current and the critical field. The authors thank B. M. Vul, corresponding member AN SSSR, and M. B. Golant, doctor of technical sciences, for interest in the work and valuable advice. Orig. art. has: 2 diagrams.

SUB CODE: 20,09/SUBM DATE: 23Dec65/ ORIG REF: 001

Card 2/2

BARANOV, I.A.

DECEASED
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SEE ILC

FOUNDING

BARANOV, I.B., inzhener.

Cold welding as a new technique used for joining metals. Proizv.-tekh.inform. no.5:90-99 '52. (MLRA 10:3)
(Welding)

Metallurgical Abst.
Vol. 21 Apr. 1954
Joining

Cold Welding of Aluminium Parts. I. R. Baranov (*Avtog. Delo*, 1953, **24**, (1), 31-32).—[In Russian]. A device for cold welding flat Al parts is described. It is based on the principle of appn. of conc. high (hydraulic) pressure at selected points. When the pressure exceeds the elastic limit of Al, the metal begins to flow and a weld is formed between the two parts.
—S. K. L.

BARANOV, I.B.

P. T. R.
Vol. 3 No. 4
Apr. 1954
Welding and Joining

5812. Cold Welding of Aluminum. (Russian.) I. B. Baranov. *Vestnik Mashinostroenia*, v. 33, no. 9, Sept. 1953, p. 88-89.
High productivity and simplicity permits joining of different metals. Diagrams, graphs, photographs, table.

Baranov, I. B

112-6-11895

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr6, p.18 (USSR)

AUTHOR: Baranov, I.B.

TITLE: Cold Welding for Aluminum Capacitor Tanks
(Kholodnaya svarka alyuminiyevykh korpusov kondensatorov)

PERIODICAL: Informatsionno-tekhnicheskiy sbornik, Ministerstvo elektrotekhn. prom-sti SSSR, 1955, #82, pp. 12-23

ABSTRACT: The shortcomings of the well known methods for manufacturing of capacitor tanks are: a) Soldering of steel tanks: low productivity, high tin consumption, unreliability of seams at higher temperatures and vibrations; b) long-drawn steel tanks having welded lids: necessitate high-power presses, high cost and complexity of equipment, high electric power consumption. The above shortcomings can be avoided in case of seamless aluminum tanks manufactured by the tubing process and cold-welded with their lids. In addition, the phosphating of steel tanks prior to the section assemling and the external painting of the tanks are av ided. The essence of the cold welding of aluminum is this: with very close contact of metal surfaces, at room temperatures, an interaction between the electrons of the outermost orbits of the atoms occurs, and a strong whole-metal union results. Grease films should be removed from the contacting surfaces by means of a steel brush. The remaining oxide

Card 1/2

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr6, p.18 (USSR)

film due to its brittleness is destroyed by the plastic deformation of metal, it becomes discontinuous and bares the sections of pure metal which form the metallic bond. With the deep pressure of the punches the cold welding is effected throughout the entire zone of the seam, not only between the end faces of the punches. When joining 0.5-mm thick tanks with 1-mm lids, with the punch flange 0,5 mm high and 1 mm wide, the specific pressure of 100 to 125 kg per 1 mm of seam perimeter is used. With the lid 2 mm thick the specific pressure is 150 to 175 kg/mm. The tanks sealed by this method can be destroyed at internal pressure 5 to 20 kg/cm^2. Bibliography: 4 titles.

ASSOCIATION: VNIIESO

V.T.R.

BARANOV, I.B., inzhener.

Cold welding in the electric machinery industry. Vest. elektroprom. 27 no.10:28-35 '56. (MLRA 10:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya.

(Welding)

BARANOV, I.B.

Cold welding of aluminum with copper. Avtom. svar. 10 no.1: 80-87 Ja-F '57. (MLRA 10:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut svarochnogo oborudovaniya.
(Aluminum--Welding) (Copper--Welding) (Plasticity)

Баранов И.В.

AUTHOR: Baranov, I.B. 125-1-10/15

TITLE: Problems of Preparing Machine Part Surfaces for Cold Welding (K voprosu o podgotovke poverkhnosti detaley k kholodnoy svarke)

PERIODICAL: Avtomaticheskaya Svarka, 1958, # 1, pp 63 - 70 (USSR)

ABSTRACT: The article deals with experimental investigations relating to methods of preparing metal part surfaces for cold welding. The author gives experimental data showing that an oxide film on aluminum does not prevent cold welding but that organic impurities on the surface make aluminum welding impossible. He also states that chrome and nickel surfaces have a different sensitivity to organic impurities in the cold welding of copper.

Prior to the joining of surfaces by welding they must be cleaned from grease and dirt. It is, however, practically impossible to clean the parts from oxide films, as the film reappears immediately so that in cold welding this film must be destroyed just at the moment of contact of the parts to be welded. This can be done by means of plastic deformation in the case of metals which are characterized by high plasticity and have a hard brittle oxide film. The plastic deformation destroys these films; bare parts of pure metal are exposed and the metallic junction is performed.

Card 1/ 3

Thus the plastic deformations is a fundamental condition for cold welding and the capability of various metals for cold welding depends on the correlation between the hardness of the basic metal and that of the covering film. The author states that S.B. Aynbinder and E.F. Klokova hold another point of view, citing the good results of aluminum welding with preceding calcination.

As a result of the preceding investigations the author comes to the following conclusions:

The main purpose of preparing metal parts for cold welding is to clean the surface of organic films that have been adsorbed. Best results can be obtained by a rotating metal brush. Calcination in a temperature of 350-400°C with free access of air, is a good preparatory method for the welding of aluminum parts, ensuring the full penetration of the adsorbed film on the surface. Parts which have been cleaned by rotating steel brushes and calcination, must not be contaminated, as even slight impurities such as fingerprints make cold welding possible. Copper parts can be prepared for welding by galvanic nickel plating. Nickel parts must be preserved from dirt and cleaned with a dry cloth before welding. It is not expedient to chrome-plate any machine parts for cold welding, as this method does not ensure durable joints without special additional treatment. The durability

of welded chrome-plated samples amounts to only 55% of the durability of uncovered copper samples worked with steel brushes.

There are 5 tables, as well as 4 English and 7 Russian references.

ASSOCIATION: Laboratory of Cold Welding of VNIIESO (Laboratoriya kholodnoy svarki VNIIESO)

SUBMITTED: 15 August, 1957

AVAILABLE: Library of Congress

AUTHOR: Baranov, I.B., and Stroyman, I.M. 125-58-7-12/14

TITLE: Seam Cold Welding of Aluminum Items (Shovnaya kholodnaya svarka izdeliy iz alyuminiya)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 7, pp 72-75 (USSR)

ABSTRACT: Information is presented on a new method and machine for cold welding aluminum kettles, developed by VNIIESO together with the "Elektrik" Plant. The experimental machine designed by Engineer Ye.F. Yegorov, shown in photos and drawings, works by rollers, is driven by an electric motor, and is comprised of a pneumatic pressure device developing a welding stress up to 8 tons. Welding the bottom portion of an electric tea-kettle to the body takes 12 seconds. The seams are tight. The machine is recommended for industrial use.
There are 2 photos and 3 diagrams.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya (All-Union Scientific Research Institute of Electric Welding Equipment)

SUBMITTED: December 27, 1957

Card 1/2

110-58-5-2/25

AUTHORS: Baranov, I.B. and Volkov, S.N., Engineers

TITLE: Hermetic Sealing of Aluminium Containers for Capacitors by Cold Welding (Germetizatsiya alyuminiyevykh korpusov kondensatorov kholodnoy svarkoy)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Vol 29, Nr 5, pp 5 - 9 (USSR).

ABSTRACT: It is very advantageous to use aluminium containers for hermetically-sealed paper and metallised-paper capacitors, because the containers can be made by the economic process of impact extrusion. One of the difficulties of using aluminium containers has been that of making a hermetic joint to the lids. This can be done by cold welding but an essential condition is that the metal surfaces which are brought together must be free from the usual oily and oxide films. Some metals, including aluminium, have a brittle oxide film that can be broken by plastic deformation. Deformation is therefore necessary when cold-welding. If made of aluminium not thicker than 2 mm, the containers and lids of most capacitors can be joined together by the simplest of cold welding procedures, as illustrated in Figure 1, without preliminary compression of the parts to be welded. However, the quantity of flash left round the weld edges makes the normal method of cold welding

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unsuitable for capacitors. A method better suited to capacitors was therefore developed by I.B. Baranov and S.M. Taz'be. When cold-welding aluminium not only are the butt ends welded but welding also penetrates into the peripheral zone, as shown in Fig.2. With this method of welding most of the flash from the container and lid are cut off. When the dies are pressed into the metal, welded zones are formed on both sides of the perimeter of the working parts of the tools. The external welded zone is cut off and, therefore, to reduce the welding pressure the dies should be relieved so that the external supporting parts clear the surface of the product.

It has been found that when sealing a container 0.5 mm thick to lids 1 mm thick, the welding force is 100 - 125 kg/mm of weld periphery. When the thickness of the lid is 2 mm the force required is 150 - 175 kg/mm weld periphery.

Mechanical cleaning with a steel brush is very satisfactory. Since oxide films do not matter, parts can be cleaned some time before use provided they do not get dirty. Metal dust formed during brushing must be kept out of the containers.

Hermetic Sealing of Aluminium Containers for Capacitors by Cold Welding.

Satisfactory results were obtained when the mating surfaces were washed with pure solvents such as ethyl alcohol or benzol, but the joint failure rate was much higher than when mechanical cleaning was used. Parts can also be cleaned by heating to 350 - 400 °C in air for 30 - 40 min. This method is suitable for cleaning the lids of capacitors, provided they do not carry insulators.

In many types of capacitors, one of the electrodes is connected to the container. This can be done by catching a copper or aluminium lead between the container and the lid during the process of welding the lid in place.

When a flat lid is cold-welded to a container, it becomes buckled which may impair the hermetic sealing of the insulator; the effect is shown in Fig.3. As a remedy, the author has developed an inset lid, illustrated in Figure 4. Here, the part surrounding the insulator remains flat during welding. Moreover, the lid is positively located which is convenient during high-speed production. The thickness of the lid has an important influence on the strength of the product, as will be seen from the tabulated

 data for lids of different thickness.

Hermetic Sealing of Aluminium Containers for Capacitors by Cold Welding

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A large number of aluminium capacitor containers were cold-welded and tested. Temperature-cycling tests were made on samples at temperatures ranging from + 150 °C to - 60 °C. Vibration tests were made at 50 cps with an acceleration of 15 g for ten hours. Capacitors were dropped on to a cement floor from a height of 1 m. In all these tests the results were satisfactory. Type-tests were made on an experimental batch of 150 electrolytic and 225 metallised-paper capacitors of the types illustrated in Figures 5 and 6, respectively. The tests included ageing at + 60 °C, temperature-cycling at ± 60 °C and three hours' vibration at 50 c.p.s. with an acceleration of 15 g. These tests did not impair the hermetic sealing.

The "Elektrik" Works developed semi-automatic machines, type MKhSK-1 for the cold-welding operation. The machine is illustrated in Figure 7 and can handle round containers up to 50 mm diameter and square containers up to 45 x45 mm with a limiting height of 85 mm. The machine is briefly described; its output is 750 welds/hour.

There are 7 figures, 1 table and 2 Soviet references.

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110-58-5-2/25

Hermetic Sealing of Aluminium Containers for Capacitors by Cold Welding

ASSOCIATIONS: VNIIESO and Zavod "Elektrik" ("Elektrik" Works)

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25(1) PHASE I BOOK EXPLOITATION SOV/3213

Baranov, Isaak Bentsianovich

Kholodnaya svarka plastichnykh metallov (Cold-pressure Welding of Plastic Metals) Moscow, Mashgiz, 1959. 115 p. Errata slip inserted. 6,000 copies printed.

Reviewer: S. B. Aynbinder, Candidate of Technical Sciences; Ed.: S. G. Sarafanov, Candidate of Technical Sciences; Ed. of Publishing House: N. Z. Simonovskiy; Tech. Ed.: Ye. A. Dlugokanskaya; Managing Ed. for Literature on the Design and Operation of Machinery (Leningrad Division, Mashgiz): F. I. Fetisov, Engineer.

PURPOSE: This book is intended for technical personnel in the field of metal welding.

COVERAGE: Questions of the physical nature of the cold-pressure welding of metals and welding technique and equipment are discussed. Information on basic principles of the processes of cold-pressure lap and butt welding and on optimum welding regimes is presented. Preparation of parts for welding is also described. The book is based on research conducted at labora-

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tories of the "Elektrik" Plant and the Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya (All-Union Scientific Research Institute of Electrical Welding Equipment). I. M. Stroyman, Senior Engineer, took part in the work done at the Institute. There are 68 references: 43 Soviet, 17 English, 5 German, 1 French, 1 Polish, and 1 Czech.

TABLE OF CONTENTS:

Cold-pressure Welding (Cont.) SOV/3213

Bibliography

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AVAILABLE: Library of Congress
Card 5/5

VK-ec
3-21-60

25(1) SOV/125-12-4-8/18

AUTHOR: Baranov, I.B., Candidate of Technical Sciences

TITLE: Cold Welding Joints of Copper Overhead Trolley Lines

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 4, pp 66-70 (USSR)

ABSTRACT: The article describes an apparatus for cold welding joints of copper overhead trolley lines type TF 100, which has been developed 1956 by the VNIIESO. This apparatus, type MSKh-[illegible] can also be used for welding of aluminum or aluminum with copper up to 250 mm^2. It has a hydraulic pump with electric motor, a welding press, a mechanism to cut off the wires. It can be heated up to 60°. There are 4 photographs and 1 diagram.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya (All-Union Scientific Research Institute for Electric Welding Equipment)

SUBMITTED: February 3, 1959

Card 1/1

BARANOV, I.B.; NEDOREZOV, V.Ye., kand. tekhn.nauk, retsenzent; SIMONOVSKIY, N.Z., red. izd-va; PETERSON, M.M., tekhn.red.

[Cold welding of plastic metals]Kholodnaia svarka plastichnykh metallov. Izd.2., perer. i dop. Moskva, Mashgiz, 1962. 151 p. (MIRA 15:11)

(Cold welding)

s/125/62/000/002/006/010
D040/D113

AUTHOR: Baranov, I.B.

TITLE: New cold butt welding machines for joining aluminum, copper and aluminum to copper

PERIODICAL: Avtomaticheskaya svarka, no. 2, 1962, 49-59

TEXT: The design and operation of the МСХС 5 (MSKhS-5) and МСХС 35 (MSKhS-35) cold butt welding machines, the first of a range of such machines being developed by VNIIESO for the electrical industry, are described in detail. Such machines are required for joining aluminum and copper wires, wires to copper parts, as well as for joining RR and tram wires. The first five MSKhS-5 machines have been produced and are being used at the "Elektrik" Zavod (Plant) for fabricating aluminum windings for welding transformers. The MSKhS-5 has a pneumatic drive and welds joints of 2-20 mm² in cross section; the MSKhS-35 has a hydraulic drive and is designed for up to 300 mm² aluminum conductors or up to 150 mm² copper conductors; the upsetting pressure is 5 and 35 t respectively. Both machines are lever-controlled. The MSKhS-35 has been tested, and the Oktyabr'skaya zheleznaya doroga (The Oktyabr'skaya Railroad) has started producing it for railroads, and

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S/125/62/000/002/006/010
D040/D113

New cold butt welding .....

VNIIESO has completed four units for the Leningrad Tram and Bus Administration and for the Moskovskiy elektrozavod (Moscow Electrical Plant). Serial production of both machines is envisaged in the Orenburg area. Schematic drawings and photographs of the machines are included. An analogous cold welding machine which was previously built, but is not to be serially produced, is mentioned. It is the MXC-30 (MKhS-30), one unit of which is used by the Vil'nyusskiy zavod elektrosvarochnogo oborudovaniya (Vil'nyus Electric Welding Equipment Plant). The designers of the three cold welding machines are Engineers A. N. Yershov, I. I. Krupskiy and I. N. Kondrashko, and mechanic B. G. Kvitsel'. There are 11 figures and 3 tables.

ASSOCIATION: VNIIESO

SUBMITTED: April 19, 1961

Card 2/2

BARANOV, I.B.

Machine unit for the cold butt welding of copper contact wires. Avtom.svar. 16 no.5:75-77 My '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarki oborudovaniya.

BARANOV, I.D., inzh.

Some characteristics of track maintenance on curves. Put' i put. khoz. no.5:18-20 My '58. (MIRA 13:3)

1.Zamestitel' nachal'nika distantsii, stantsiya Chusovaya Sverdlovskoy dorogi.

(Railroads--Curves and turnouts)

SHAPIRSKIY, N.A., inzh.; FIL'CHAKOV, P.F., prof.; [illegible], I.D., inzh.

Determining deflections of eccentrically compressed reinforced concrete construction elements. Bet. i zhel.-bet. no.1:39-40 Ja '61. (MIRA 14:2)

(Columns, Concrete) (Strains and stresses)

BARANOV, I.G.

KLITOCHENKO, I.F.; MUROMTSEV, A.S.; BARANOV, I.G.; MARTYNOV, A.A.

Oil-and gas-bearing prospects of the eastern part of the Dnieper-Donets Lowland. Geol. nefti 1 no.9:1-7 S '57. (MLRA 10:9)
(Dnieper Lowland--Petroleum geology)
(Dnieper Lowland--Gas, Natural--Geology)
(Donets Basin--Petroleum geology)
(Donets Basin--Gas, Natural--Geology)

BARANOV, I.G.; DENEGA, B.I.

Uneven development of the salt domes of the Dnieper-Donets Lowland. Trudy UkrNIGRI no.5:5-15 '63.

(MIRA 18:3)

BARANOV, I.G.

3(5) PHASE I BOOK EXPLOITATION SOV/2682

Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy neftyanoy institut

Voprosy poiskov, razvedki i dobychi nefti i gaza na territorii USSR; doklady na vyyezdnoy sessii uchenykh sovetov VNIGNI i VNII, prokhodivshey v g. L'vove v maye 1957 g. (Problems in the Exploration and Production of Oil and Gas in the Ukrainian SSR; Reports Presented at a Session of the Scientific Councils of the All-Union Petroleum Scientific Research Institute for Geological Survey and the All-Union Scientific Research Institute, in Lvov, May 1957) Moscow, Gostoptekhizdat, 1959. 282 p. 1,000 copies printed.

Additional Sponsoring Agency: USSR. Ministerstvo geologii i okhrany nedr.

Eds.: I. G. Baranov, V. V. Glushko, and A. S. Murzatsev; Executive Eds.: S. M. Tungans, and A. I. Zaretskaya; Tech Ed.: I. G. Fedotova.

PURPOSE: This book is intended for petroleum geologists and Ukrainian area specialists.

COVERAGE: This book contains 27 reports originally read at a meeting of the scientific councils of the VNIGNI (All-Union Petroleum Scientific Research Institute for Geological Survey), the VNII (All-Union Scientific Research Institute), the VNIIgaz, Ukrneft', Ukrgaz, Ukrvostokneftorazvedka, Ukrneftegazrazvedka, and Ukrneftegeofizika held in L'vov in May,1957. The papers deal with the petroleum geology of the Dnepr-Donets depression, the Carpathians, Ciscarpathia, the southwestern fringe of the Russian Platform, and the northern Black Sea area. Particular attention is given to describing the geological features of those regions most likely to bear oil. Other articles discuss oil production techniques and ways of increasing drilling speed in deep wells. No personalities are mentioned. References accompany individual articles.

BARANOV, I.G.; VITENKO, V.A.; ZAV'YALOV, V.M.; MUROMTSEV, A.S.

Possible reserves of oil and gas in the Dnieper-Donets Lowland. Geol. nefti i gaza 5 no.7:17-19 Jl '61. (MIRA 14:9)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut.
(Dnieper-Donets Lowland--Petroleum geology)
(Dnieper-Donets Lowland--Gas, Natural--Geology)

FEL'DSHTEYN, E.I., doktor tekhn. nauk, prof. [deceased]; BARANOV, I.G., inzh., retsenzent; KLUSHIN, M.I., doktor tekhn. nauk, red.

[Fundamentals of the efficient use of metal-cutting tools] Osnovy ratsional'noi ekspluatatsii rezhushchikh instrumentov. Izd.2., perer. Moskva, Mashinostroenie, 1965. 178 p. (MIRA 18:2)

BARANOV, I.I.

[Orenburg; an album] Orenburg; al'bom. Orenburg, Orenburgskoe knizhnoe izd-vo, 1959. 64 p. (MIRA 14:2)
(Orenburg--Views)

BARANOV, Ivan Ivanovich; LAPSHIN, Georgiy Semenovich; MISHCHENKO, Vladimir Il'ich; MAKAROVA, E.A., red.; ANDREYEVA, L.S., tekhn. red.

[How to organize work with efficiency promoters in an enterprise]Kak organizovat' rabotu s ratsionalizatorami na predpriiatii. Moskva, Profizdat, 1962. 62 p. (MIRA 15:9)
(Rostov--Agricultural machinery industry--Technological innovations)
(Suggestion system)

S/109/62/007/004/012/018
D290/D302

9.4340

AUTHOR: Baranov, I.L.

TITLE: The hysteresis of p-n junction diodes at large forward current densities

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 4, 1962, 693 - 701

TEXT: The transient processes occuring in p-n junction diodes are studied theoretically for large forward current densities and for rapid changes in the applied voltage. The work has a direct bearing on the use of such diodes in pulse systems and at high frequencies, and may help in studying the properties of transistors containing p-n junctions. The calculations show that if the applied voltage changes sharply the current jumps to an intermediate value and then rises exponentially to its steady-state value; i.e. the impedance of the diode is partly inductive (this has been observed experimentally). The conductivity of the semi-conductor changes as carriers are injected across the p-n junction and diffuse into the n-type layer; this causes the inductive effect. The initial rise in current

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and the time constant of the transient process depend on the properties of the semiconductor, the difference between the initial and final steady-state currents, and the ratio L_o/L, where L_o is the thickness of the n-type layer. [Abstractor's note: L not defined]. The results are valid if the concentration of injected carriers is much greater than the concentration of primary carriers; the diode hysteresis is partly capacitive if the concentration of injected carriers is much less than the concentration of primary carriers. There are 3 figures, 3 tables and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Fizicheskiy fakul'tet Saratovskogo gosudarstvennogo universiteta im.N.G. Chernyshevskogo (Physics Faculty of Saratov State University imeni N.G. Chernyshevskiy)

SUBMITTED: June 24, 1961

L 3974-66 EWT(d)/EWT(l)/EWP(c)/EWP(v)/T/EWP(k)/EWP(l)/EWA(h) WW

ACCESSION NR: AP5020923 UR/0142/65/008/003/0317/0321
612.375.1

33
B

AUTHOR: Baranov, I. M.; Skvortsov, S. M.; Sokolov, I. M.

TITLE: One procedure for checking the amplitude characteristics of logarithmic amplifiers 25

SOURCE: IVUZ. Radiotekhnika, v. 8, no. 3, 1965, 317-321

TOPIC TAGS: electronic amplifier, amplitude modulation, quality control

ABSTRACT: The logarithmic amplitude characteristic (LAC) of logarithmic amplifiers can be taken by using the following methods: high-precision instruments; measuring the envelope of sinusoidally modulated voltage; a high-precision attenuator. These methods all yield a relative error of linearity of the LAC on the order of 5-10%, depending on instrument accuracy. (The LAC plotted on semi-log paper should be a straight line.) The authors propose a new method yielding the same order of accuracy as the above methods but permitting the LAC to be taken comparatively rapidly. Thus it can be used for semiautomatic industrial quality control of logarithmic amplifiers, checking the LAC, and regulating the amplifiers. The

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method requires accurate but relatively simple tests and auxiliary signal generators (generating a square wave and a logarithmic sawtooth oscillation, respectively), as well as standard test equipment. The results were checked and verified experimentally. Orig. art. has: 5 figures, 7 formulas.

ASSOCIATION: none

SUBMITTED: 05Nov63 ENCL: 00 SUB CODE: EC

NO REF SOV: 001 OTHER: 000

PC

Card 2/2

USATYUK, M.K.; BARANOV, I.P.

[Pickling fruits and vegetables] Marinovanie plodov i ovoshchei. Moskva, Gos.torgovoe izd-vo, 1953. 32 p. (MIRA 8:3)
(Canning and preserving)

USATYUK, Maksim Klement'yevich; BARANOV, Ivan Pavlovich; VASIL'YEV, A.I., red.; MAKSIMOVICH, A.G., red.; ROSLOV, G.I., tekhn. red.

[Pickling fruits and vegetables] Marinovanie plodov i ovoshchei. Pod red. A.I. Vasil'eva. Izd. 3., dop. i perer. Moskva, Gos. izd-vo torg. lit- ry, 1956. 38 p. (MIRA 11:8)
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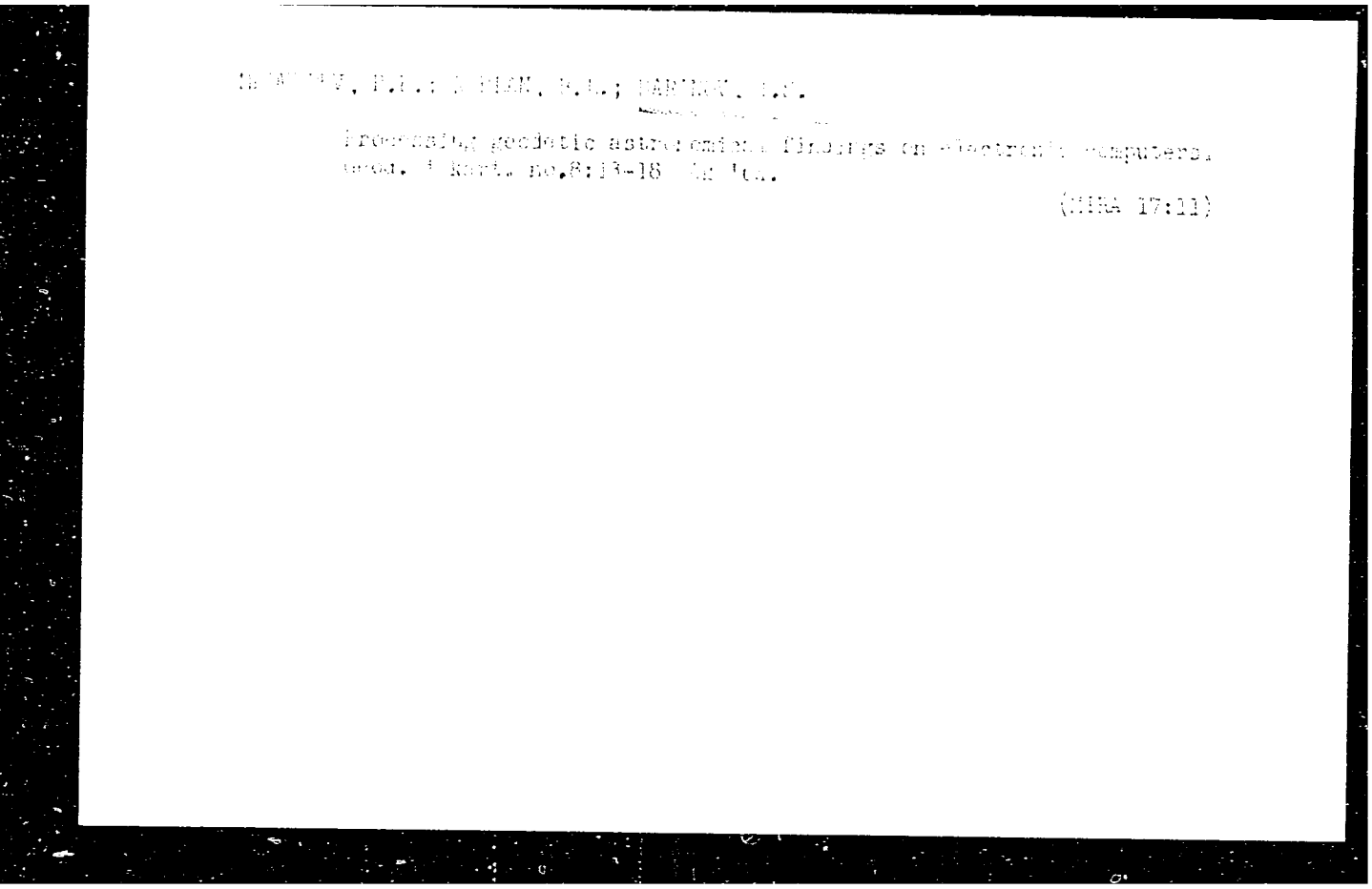
BARANOV, I. S. and KONCHITS, M. P.

"Administrative Structure of Forest Management in the White Russian SSR," Les. khoz., 5, No.8, 1952



[illegible], P.I.; [illegible], N.L.; [illegible], L.V.

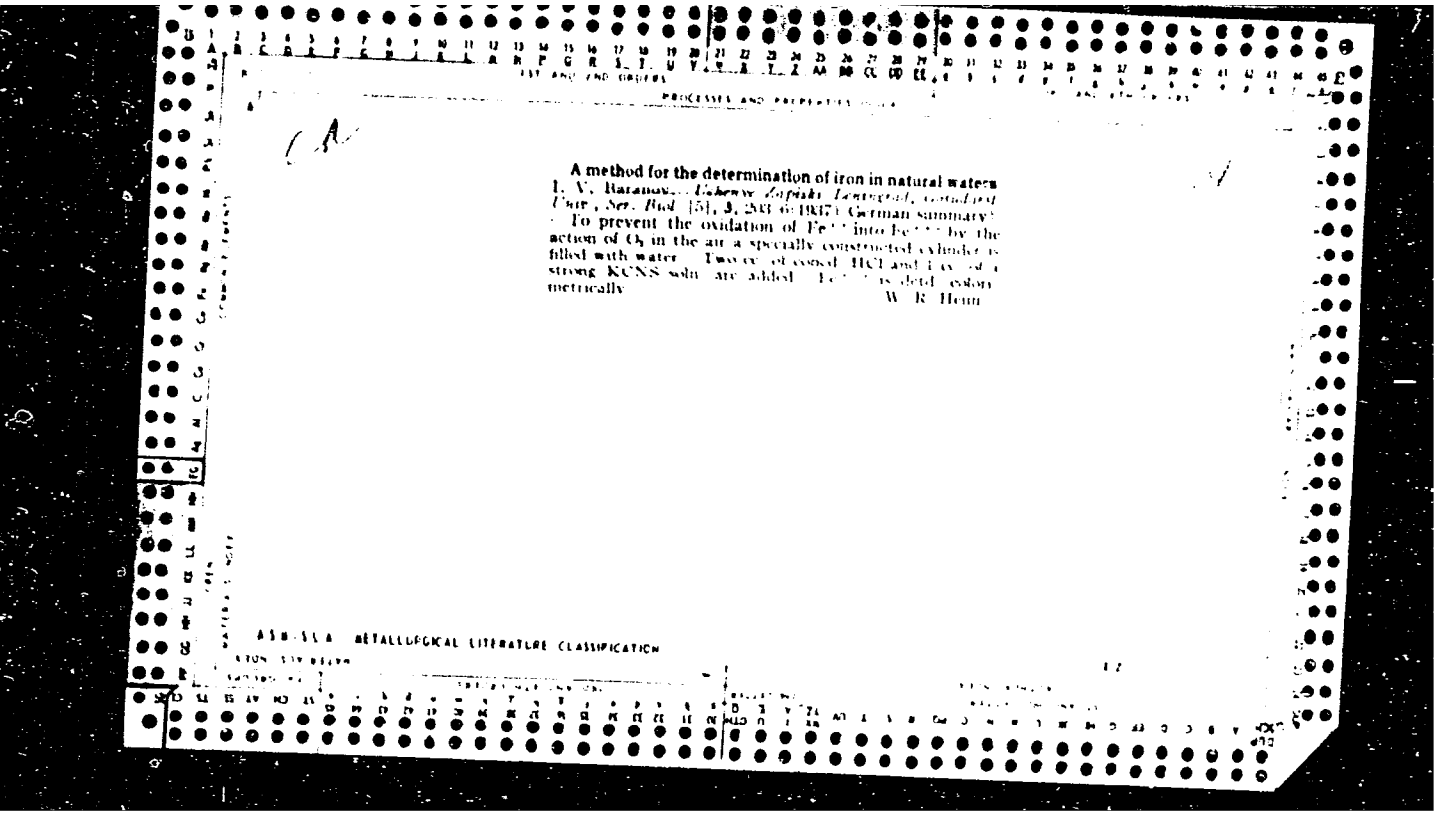
Processing geodetic astronomic [illegible] on electronic computers. Geod. i kart. no.8:13-18 '[illegible].

(MIRA 17:11)

BARANOV, I.V.

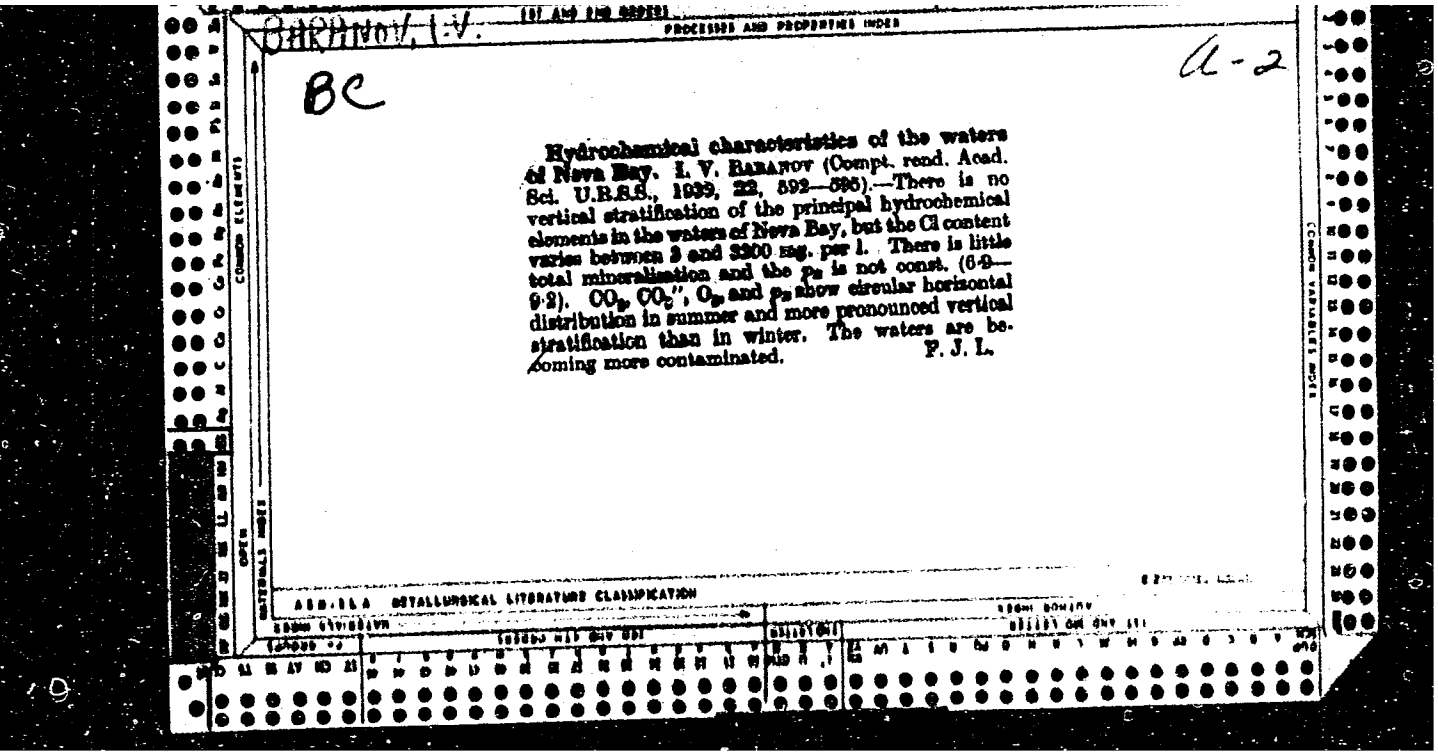
MERKUSHEV, R.N., dotsent, kandidat tekhnicheskikh nauk; BARANOV, I.V., inzhener; KOSTIN, I.I., dotsent, kandidat tekhnicheskikh nauk, redaktor; GEL'MAN, A.S., inzhener, nauchnyy redaktor; BEGAK, B.A., redaktor; PERSON, M.N., tekhnicheskiy redaktor.

[Track and trackless transportation on the building site] Rel'sovyi i bezrel'sovyi transport na stroitel'noi ploshchadke. Pod obshchei red. I.I.Kostina. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1954. 343 p. (MLRA 7:11)
(Railroads, Industrial) (Transportation, Automotive)
(Building)



A method for the determination of iron in natural waters
I. V. Baranov. *Uchenye Zapiski Leningrad. ordena Trud. Univ., Ser. Biol.* [5], 3, 281–6 (1937) German summary
To prevent the oxidation of Fe^{++} into Fe^{+++} by the action of O_2 in the air a specially constructed cylinder is filled with water. Two cc. of concd. HCl and 1 cc. of a strong KCNS soln. are added. Fe^{+++} is detd. colorimetrically.
W. R. Heun

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

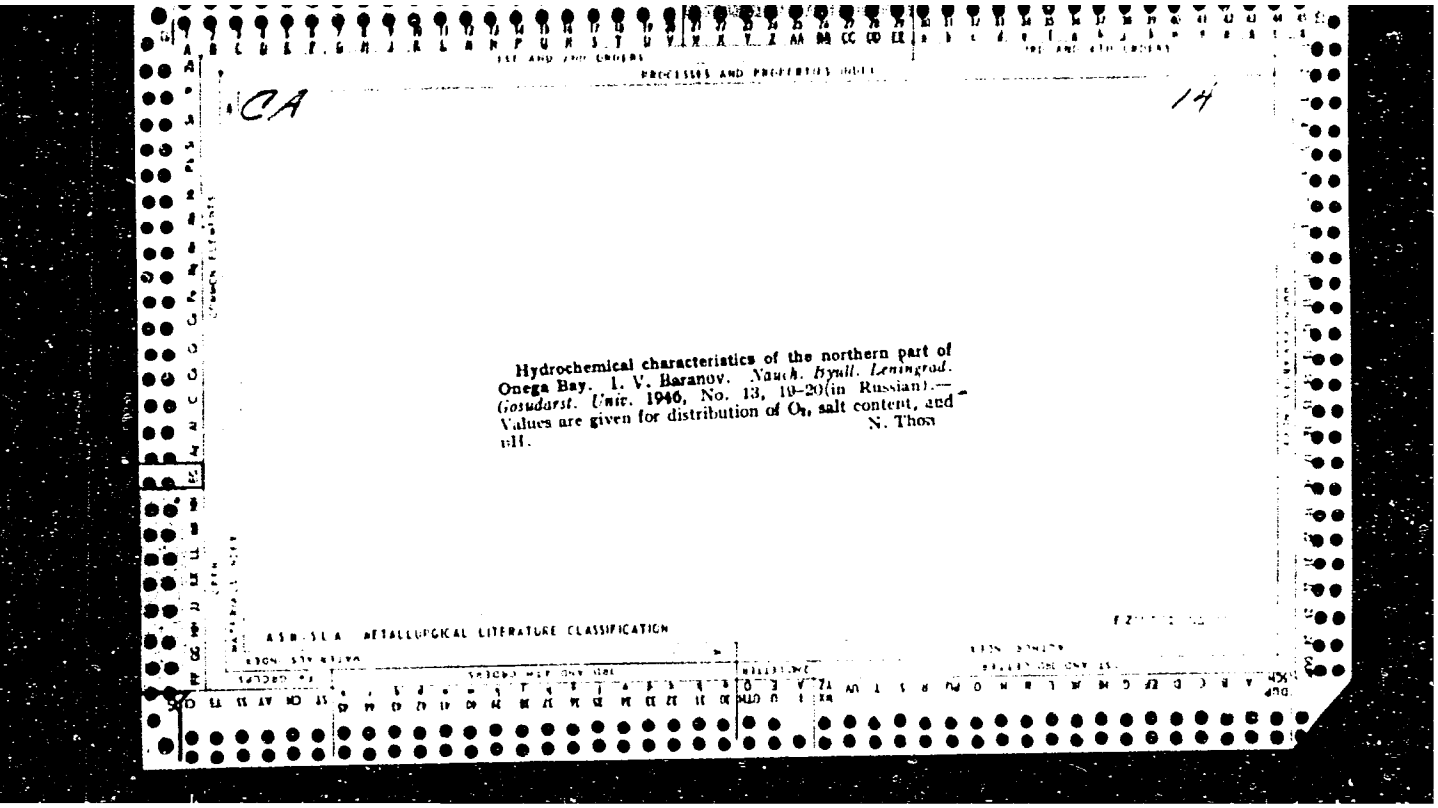


Barkhatov, I. V.

BC

A-2

Hydrochemical characteristics of the waters of Nova Bay. I. V. BARKHATOV (Compt. rend. Acad. Sci. U.R.S.S., 1939, **22**, 592—595).—There is no vertical stratification of the principal hydrochemical elements in the waters of Nova Bay, but the Cl content varies between 3 and 3300 mg. per l. There is little total mineralisation and the p_H is not const. (6·9—9·2). CO_2, CO_3'', O_2, and p_H show circular horizontal distribution in summer and more pronounced vertical stratification than in winter. The waters are becoming more contaminated. P. J. L.

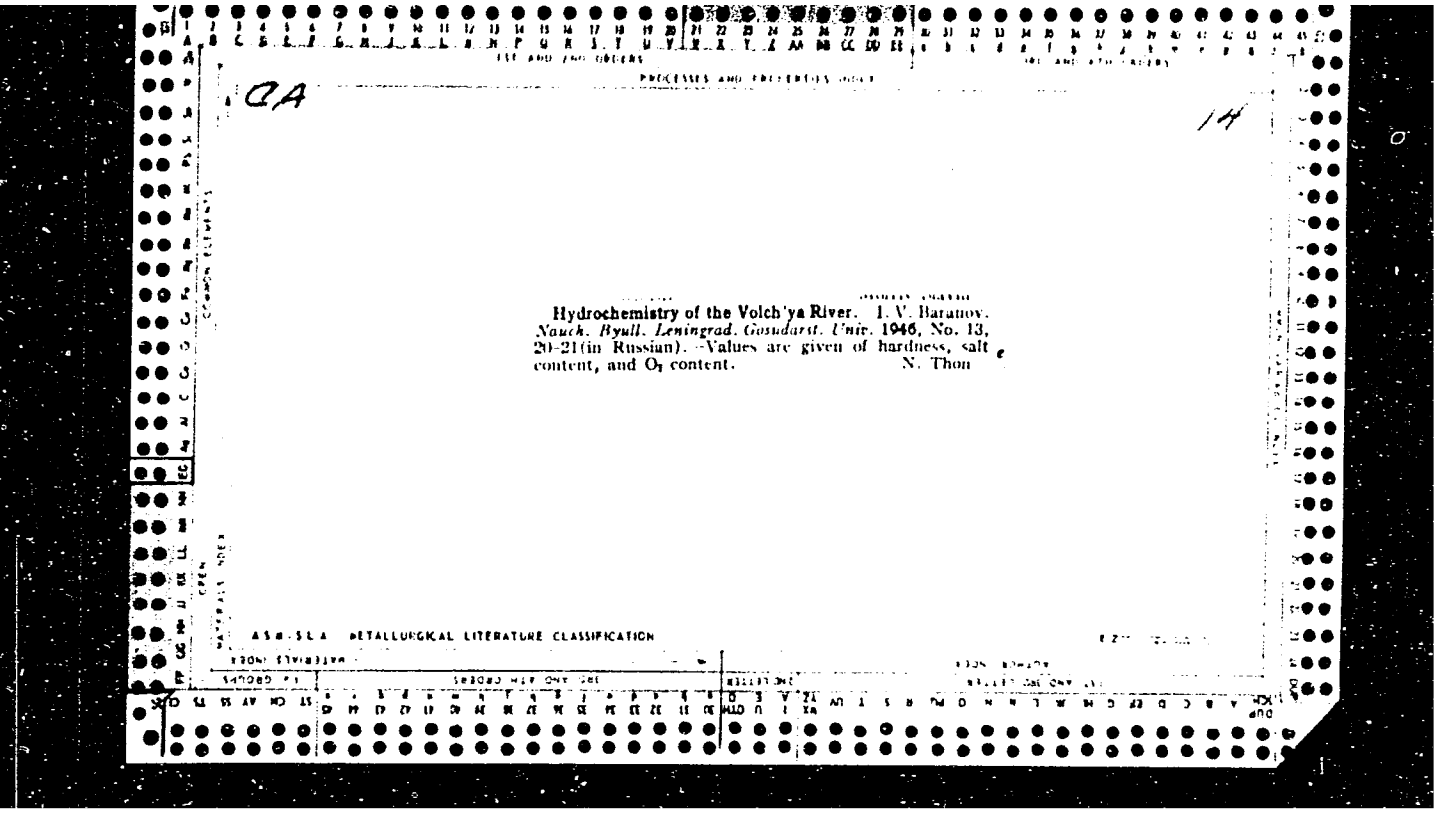


CA

14

Hydrochemical characteristics of the northern part of Onega Bay. I. V. Baranov. *Nauch. Issull. Leningrad. Gosudarst. Univ.* 1946, No. 13, 19–20(in Russian).—Values are given for distribution of O_2, salt content, and N. Thon
pH.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



QA

14

Hydrochemistry of the Volch'ya River. I. V. Baranov. *Nauch. Byull. Leningrad. Gosudarst. Univ.* 1946, No. 13, 20–21 (in Russian). —Values are given of hardness, salt content, and O_2 content. N. Thon

BARANOV, I. V.

USSR/Electricity
Hydroelectric Plants
Hydrology

Dec 1947

"Forecasting the Status of the Water Reservoir System of the Bol'shaya River," I. V. Baranov, Sr Sci Collaborator, 18½ pp

"Vest Leningrad Universitet" No 12

Presents data collected 1939-1940 by party that attempted to forecast status of two water reservoir systems in vicinity of Kurakhov Hydroelectric Station. Success of forecast enabled station to be completed and put into operation 8 Apr 1947, when one 50 thousand kwt turbogenerator was started. Discusses general characteristics of water bodies; temperature, oxygen regimes; reaction of the water (pH); biochemical use of oxygen (BPK), organic content; Ternov water reservoir; mineral content of Bol'shaya River water; and seasonal variations in mineral content of waters of Ternov and Il'inskiy water reservoirs.

LC 53T23

BARONOV, I. V. PA5/49T91

USSR/Medicine - Microorganisms May 48
Medicine - Carbonates

"Studies on the Carbonate Equilibrium in the Waters of the Silurian Plateau, Leningrad Oblast," I. V. Baronov, $2\frac{1}{2}$ pp

"Priroda" No 5

Discusses the equilibrium of CO_2, Ca and HCO'_3. Discusses waters in Leningrad Oblast, and the decalcifying effect of vegetable microorganisms.

5/49T91

BARANOV, I.V., starshiy nauchnyy sotrudnik.

Rare oxygen state in the Kristatellevyy Pond in the Biological Institute part. Nauch.biul.Len.un. no.21:11-15 '48.
(MLRA 10:3)

1. Biologicheskiy institut.
(Fresh-water biology) (Ponds) (Oxygen)

BARANOV, I.V., starshiy nauchnyy sotrudnik.

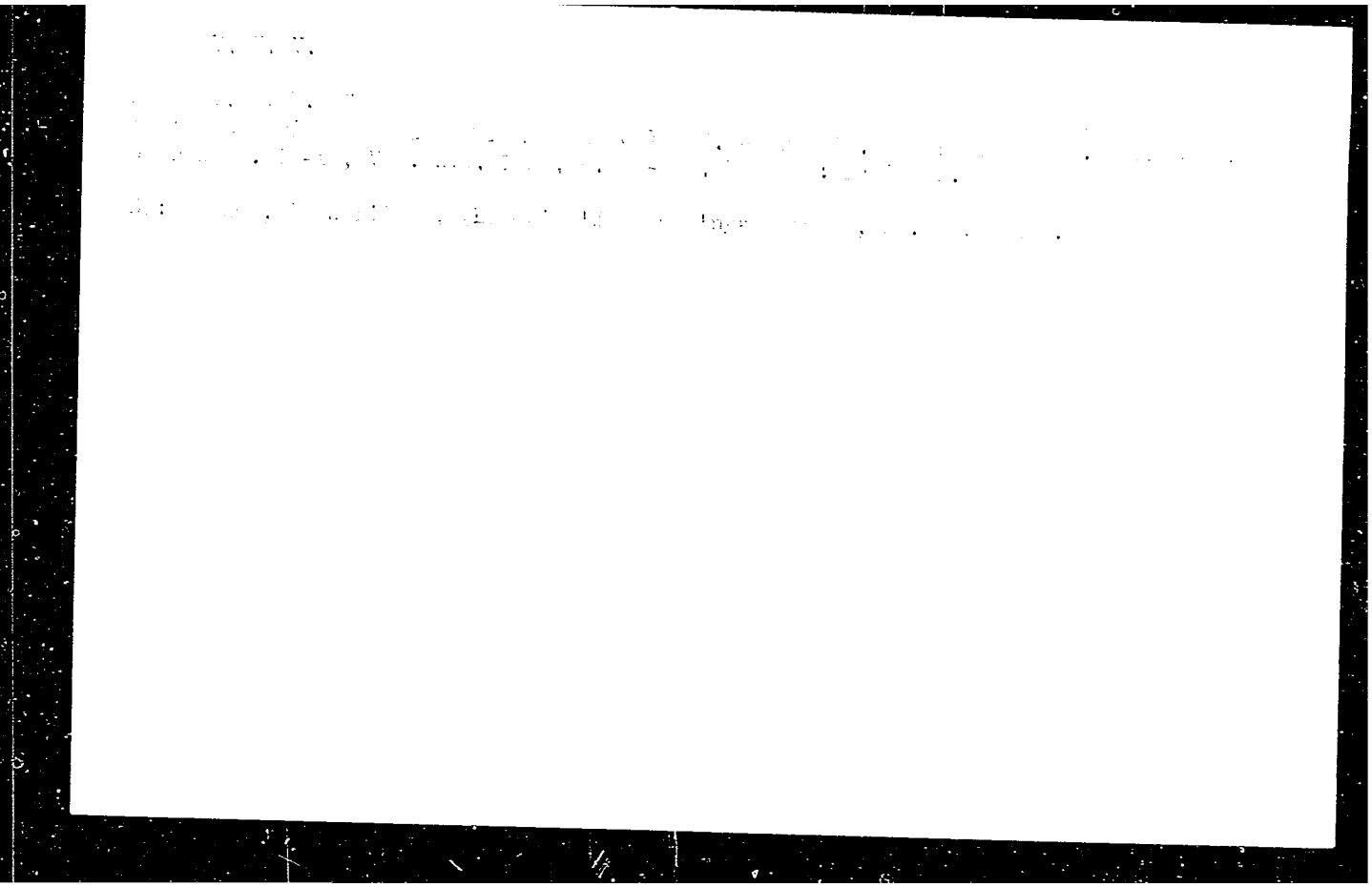
Hydrochemistry of spring and surface waters of the Sukyruan plateau in Leningrad Province and the Estonian S.S.R. Nauch.biul. Len.un. no.21:18-22 '48. (MLRA 10:3)

1. Biologicheskiy institut Leningradskogo universiteta.
(Leningrad Province--Water--Analysis) (Estonia--Water--Analysis)

BARANOV, I.V.

Annual cycle of the main hydrochemical ingredients in the water of Neva Bay. Uch.zap.Len.un. no.126:7-66 '49. (MLRA 9:6)

1.Laboratoriya gidrobiologii Biologicheskogo instituta.
(Neva Bay--Hydrology)



BARANOV, I. V.

"Biohydrochemical Factors of the Water in Some Lakes of the Shuya River Basin," Uch. zap. Len. un., No.142, 1951

1. BARANOV, I. V.

2. USSR (600)

4. Water--Composition--Volga River

7. Comparative hydrochemical description of certain spawing shallows of the Volga Delta in connection with the object of raising their fish productivity, Vest. Len. un., 7, No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

BARANOV, I. V.

USSR

Biochemical conditions of water in fish ponds of Tsimlyansk. I. V. Baranov (All-Union Sci. Research Inst., Lake and River Fish Ind., Tsimlyansk, U.S.S.R.). *Rybnoe Khoz.* 29, No. 10, 35–9(1953).—It is necessary to det. biochem. conditions of water in new ponds during the first few years to permit optimum conditions for breeding fish. About 1700 analyses were made in Nov., 1952 and Mar., 1953 in Tsimlyansk (eastern Ukraine) pond waters for temp., pH, O, CO_2, HCO_3^-, CO_3^{--}, P, SiO_2, NO_2^-, NO_3^-, Cl, SO_4^{--}, Fe, Ca, Mg, and biologically available O_2. The hydrobiol. conditions in the fall and winter of 1952 were influenced by high levels of P, NO_3^-, and SiO_2. In summer, fall, and winter of 1952–3 these totaled 10.50–15.25 g./cu. m. Such conditions are unusual and the P and N in these waters were 8 to 10 times those of waters in other parts of the country. Favorable biochem. conditions and temp. during summer of 1952 permitted great growth of phytoplankton. Lab. expts. indicated addnl. P had a toxic effect. Addnl. NO_3^- increased growth indicating min. needed in waters for developing breeding carp and bream.

Eugenia Sokoloff

1. [illegible], I. V.
2. U.S.S.R (600)
4. Mineral waters - Karelia
7. Chalybeate springs of the Karelo-Finnish S. S. R. Priroda 42, No. 3, 1953.

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BARANOV, I.V.

USSR/ Cosmochemistry. Geochemistry. Hydrochemistry D.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11553

Author : Baranov I.V.
Inst : All-Union Scientific Research Institute of Lake and River Pisciculture
Title : Hydrochemical Regimen of Tsimlyanskoye Reservoir

Orig Pub : Izv. Vses. n.-i. in-ta oz. i rech. ryb. kh-va, 1954, 9-60

Abstract : Presented is the annual cycle of investigations of Tsimlyanskoye reservoir in 1952-1953. Determined were temperature, pH, O_2, HCO_3, CO_3, CO_2, SO_4, P, SiO_2, NO_3, NO_2, Ca, Mg, organic substances and trasparency.

Thermal stratification was found to occur only during the period of calm (difference between surface and bottom layers ~8°). Transparency is low. Content of O_2 varied from 1 - 26 mg/liter. High dynamicity of oxygen content conditions during summer is due to alternating periods of dry winds and calm. Deficit was only episodical in few stretches of water during March. Oxidizable 4.0 - 10.0 mg/liter, organic matter consists mostly of autochthonous meterial. Relationship between pH and components of carbo-

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USSR/ Cosmochemistry. Geochemistry. Hydrochemistry

D.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11553

nate system undergoes sharp variations due to changes in intensity of phytoplankton development; during the period of greatest development $CaCO_3$ separated from solution. Biogenic substances are present in increased amounts (in mg/liter): P 0.05 - 0.5, nitrate N 0.2 - 2.5, SiO_2 3.0 - 12.0

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Баранов И.В.

123-1-1586

Translation from: Referativnyy Zhurnal, Mashinostroyeniye, Nr 1, 1957, p. 228, (USSR)

AUTHOR: Baranov, I.V.

TITLE: The VNIORKh (All-Union Scientific Research Institute of the Lakes and River Fish Industry) Combination Water and Soil Sampling Device (Bathometer) (Kombinirovannyy batometer ВНИОРХ dlya otbora prob vody i grunta.)

PERIODICAL: Nauch. tekhn. byul. Vses. n.-i. in-t oz.i rech.ryb.kh-va, 1956, Nr 1-2, pp.67-69

ABSTRACT: The author describes the combination water and soil sampling device VNIORKh for sampling water from any desired depth, including the bottom level, and for taking bottom core samples. This device may be used as a soil stratimeter, as well as a water sampling device. It is free of those shortcomings commonly

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The VNIORKh (Cont.) 123-1-1586

encountered in similar foreign devices, such as the Knudsen's and others used in hydrological and hydrochemical tests. The basic parts of the apparatus are: a one liter cylinder with a thermometer, a lowering and cylinder locking mechanism, a derrick, a small dropping weight to close the cylinder, and a winding key; the kit contains 20,40 and 60 cm long headpieces for ground sampling, a little trowel, to cut the core samples, and two ring weights of 3.86 and 6.5 kg to increase the apparatus' weight when required by weather conditions, kind of ground, or sampling at greater depths. The application methods of this bathometew, field tested in lakes or depths up to 50m, and now introduced at the VNIORKh and its branches' research work, are briefly outlined.

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APPROVED I N

USSR /Chemical Technology. Chemical Products and Their Application I-14

Water treatment. Sewage water.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31705

Author : Baranov I.V., Shkol'nikova K.L.

Inst : All-Union Scientific Research Institute of Lake and River Fishery

Title : Procedure for the Determination of Iron in Water

Orig Pub: Nauch.-tekhn. byul. Vses. n.-i. in-ta oz. i rech. ryb. kh-va, 1956, No 3-4, 110-111

Abstract: To determine total concentration of Fe it is recommended to use the following procedure: To 50 ml water are added 0.1 g ammonium persulfate

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USSR /Chemical Technology. Chemical Products and Their Application I-14

Water treatment. Sewage water.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31705

the mixture is boiled for 10 minutes, cooled, and adjusted to 50 ml with distilled water, after which 1 ml of concentrated HCl is added, followed by 2 ml of KCNS or NH_4CNS solution, and a colorimetric determination is carried out.

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BARANOV, I.V.; SHPAYKHER, A.O.

Change of some elements of hydrological conditions in the Baltic Sea. Izv.Vses.geog.ob-va 88 no.3:239-250 My-Je '56. (MLRA 9:9)
(Baltic Sea--Salinity) (Baltic Sea--Ocean temperature)

BARANOV, I.V.

Natural fertilizing zones in TSimlyansk and Vyg Reservoirs. Trudy probl. i tem. sov. no.7:170-174 '57. (MLRA 10:4)
(TSimlyansk Reservoir--Fresh-water biology)
(Vyg Reservoir--Fresh-water biology)

3(5)

AUTHOR: Baranov, I. V.

SOV/20-126-5-47/69

TITLE: The Hydrocarbonaceous Coefficients of the Waters of Some Rivers in the USSR (Gidrokarbonatnyye koeffitsiyenty v vodakh nekotorykh rek SSSR)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 5, pp 1082 - 1083 (USSR)

ABSTRACT: The hydrocarbonaceous coefficients denote the ratio between the HCO_3-content and the sum of the cations and anions prevailing in the water. As is known, they are Na^+, K^+, Ca^{++}, Mg^{++}, HCO_3^-, SO_4^{--} and Cl^- in natural waters. For instance, this ratio varies in relatively narrow limits in the rivers which discharge into the northern seas and flow through very moist regions. In any case, the said coefficients amount there from 0.50 to 0.70 in summer. Deviations from these values are very small. This is shown in table 1. The picture is a little different for the rivers discharging into the southern seas (Table 2). Here, the coefficients vary from the said values downwards. This is connected with the increasing concentration of the cations and anions mentioned in the beginning. An even higher decrease takes place in river waters of the basins without an outlet if they are

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naturally situated in an arid climate (Table 3). In this latter case, also the precipitation of the calcium carbonate from the water has a certain influence. The northern rivers are usually undersaturated with $CaCO_3$ in a certain degree (Ref 3). In the southern rivers, the said coefficients decrease with the distance from the source. The analysis carried out in the present paper, and its further development, make it possible to describe in detail the connection between the mineralization and the ion composition of the river waters on one hand, and the character of the surrounding climate as well as of the soil cover, on the other. There are 2 tables and 3 Soviet references.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy institut ozernogo i rechnogo rybnogo khozyaystva (State Scientific Research Institute for Lake and River Fishery)

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Primary production of phytoplankton in Gorkiy and Kuybyshev Reservoirs. Trudy Gidrobiol. ob-va 12:345-358 '62.
(MIRA 15:12)

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BARANOV, I.V., inzh.

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